

M A S L D R V K V L V L G D S																				SEQ ID NO:2
AGGGAAGGCAGTGGCAAG ATG GCG TCC CTG GAT CGG GTG AAG GTA CTG GTG TTG GGA GAC TCA																				SEQ ID NO:1
↑SEQ ID NO:3→																				
G	V	G	K	S	S	L	V	H	L	L	C	Q	N	Q	V	L	G	N	P	35
GGT	GTT	GGG	AAA	TCT	TCG	TTA	GTC	CAT	CTC	CTA	TGC	CAA	AAT	CAA	GTG	CTG	GGA	AAT	CCA	105
S	W	T	V	G	C	S	V	D	V	R	V	H	D	Y	K	E	G	T	P	55
TCA	TGG	ACT	GTG	GGC	TGC	TCA	GTG	GAT	GTC	AGA	GTT	CAT	GAT	TAC	AAA	GAA	GGA	ACC	CCA	165
E	E	K	T	Y	Y	I	E	L	W	D	V	G	G	S	V	G	S	A	S	75
GAA	GAG	AAG	ACC	TAC	TAC	ATA	GAA	TTA	TGG	GAT	GTT	GGA	GGC	TCT	GTG	GGC	AGT	GCC	AGC	225
S	V	K	S	T	R	A	V	F	Y	N	S	V	N	G	I	I	F	V	H	95
AGC	GTG	AAA	AGC	ACA	AGA	GCA	GTA	TTC	TAC	AAC	TCC	GTA	AAT	GGT	ATT	ATT	TTC	GTA	CAC	285
D	L	T	N	K	K	S	S	Q	N	L	R	R	W	S	L	E	A	L	N	115
GAC	TTA	ACA	AAT	AAG	AAG	TCC	TCC	CAA	AAC	TTG	CGT	CGT	TGG	TCA	TTG	GAA	GCT	CTC	AAC	345
R	D	L	V	P	T	G	V	L	V	T	N	G	D	Y	D	Q	E	Q	F	135
AGG	GAT	TTG	GTG	CCA	ACT	GGA	GTC	TTG	GTG	ACA	AAT	GGG	GAT	TAT	GAT	CAA	GAA	CAG	TTT	405
A	D	N	Q	I	P	L	L	V	I	G	T	K	L	D	Q	I	H	E	T	155
GCT	GAT	AAC	CAA	ATA	CCA	CTG	TTG	GTA	ATA	GGG	ACT	AAA	CTG	GAC	CAG	ATT	CAT	GAA	ACA	465
K	R	H	E	V	L	T	R	T	A	F	L	A	E	D	F	N	P	E	E	175
AAG	CGC	CAT	GAA	GTT	TTA	ACT	AGG	ACT	GCT	TTC	CTG	GCT	GAG	GAT	TTC	AAT	CCA	GAA	GAA	525
I	N	L	D	C	T	N	P	R	Y	L	A	A	G	S	S	N	A	V	K	195
ATT	AAT	TTG	GAC	TGC	ACA	AAT	CCA	CGG	TAC	TTA	GCT	GCA	GGT	TCT	TCC	AAT	GCT	GTC	AAG	585
L	S	R	F	F	D	K	V	I	E	K	R	Y	F	L	R	E	G	N	Q	215
CTC	AGT	AGG	TTT	TTT	GAT	AAG	GTC	ATA	GAG	AAG	AGA	TAC	TTT	TTA	AGA	GAA	GGT	AAT	CAG	645
I	P	G	F	P	D	R	K	R	F	G	A	G	T	L	K	S	L	H	Y	235
ATT	CCA	GGC	TTT	CCT	GAT	CGG	AAA	AGA	TTT	GGG	GCA	GGA	ACA	TTA	AAG	AGC	CTT	CAT	TAT	705
D	*																			237
GAC	TGA																			711
←SEQ ID NO:3↑																				
ATTACACTCATCCTTTGGAAGAGTGAGCAAGCAGTGGCAGTCTTTCACAGCTCATCTTGCTGTGTTCATTATTACCAT																				
CACAGCCTTTTAACAAATCATCTTAAATGCTACCCCTTCAGCCTTACCCCTTTAATGGAAAAATGAAAGGAAGTGACAA																				
TACGGGAGGTCCAAACTTTGTCCCTGTCTCTGTGTTCCTTACCTTTCTGTCCCTGTGTATAGATTATGTAAAAGCCTT																				
GTGTAAATATGAGATGTTGTCAAAATGATGCAGTAAATGAGCAATGACAGTGTACTGCAGAGAAAATTTACTCTTGCCT																				
AGAACTGGAGGGTTTTTATGGGTCTGTAATTTTCCCACTCATTGCTGAAAGCTTAATTAAGTACTTCAAAAACGTAT																				
CTCCATTGTTTTACCTTCTTGAGGGGAACGGTCTTGTAAACGACCCCTGAGTTGTCTACCCCAACAACTCTCTGTCAAT																				
TTCAAAGATGCAAAATGGTGTTATTTAATTGTCTCCACCATTTGCACACACAGGAATGCCTAATAATAGCAACCCCTGT																				
CTCCCTCTCTCTCCTTTTCAAAATGGCTCAGTGACTGGAAGAGCGGACTAATAGCCAGAGTTAAATATAAATACAAAT																				

FIG. 1A

TAATAATACATAGAGAACAGCAATACCAGAAAAAAGAATTCTGGTAAAATGATGTGAAAAATTGACAGCTCCCTCACT
CTTAAGGTTGCTGCTATATACAGTCTAGGTTTCTGTTTGGAAATAGGTAGGGTAAAATCTAAGACCTGCACAAGGGCA
GTGAGAGACATTTACAGCCTCCTCTCTATTGTTTTTTAAGGAAAAGTCAACTCCTGAAATGTCCCTTAGCTATAATC
AGAAAATAAGAATATTATTCTGTGTCAACAATGTATTTATGGAGAGAAGTAAAAATAAGTTCCACAGCAACACAAAAA
CATGAATTATTGAACTA

FIG. 1B

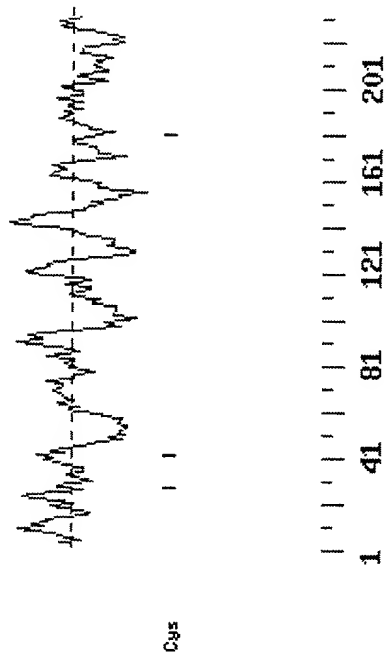


FIG. 2

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*->GlgflkiflklglwnKEmRILiLGLDnAGKTTILykLklge.ivtt  SEQ ID NO:4
      +l +      +++L+LG + GK+ +++ L +++ + +
47324  2  -----ASLDR----VKVLVLGDsgVGKSSLVHLLCQNQvLGNP 35

      iPTiGFNVetveykN.....ikFtvWDvGGQ.....eslRPlW
      + T+G v v + + ++++++++ + WDvGG ++ ++ +s R +
47324  36 SWTVGCSV-DVRVHDykegtpeektYYIELWDVGGSvgsassvKSTRAV- 83

      rnYfpnTdavIfVVDsaDreRieeakeELhaLLneeeL.....
      + +++++IfV D ++ + + L + e +++ +++ ++
47324  84 --FYNSVNGIIFVHDLTNKK---SSQNLRWSLEALNrdlvptgvltn 127

      .....adApLlifANKQDlpgAmseaEi...reaLgLhelkgskg
      ++ +++++ + plL+ + K D + +E+ +++ L +
47324  128 gdydqeqlfADNQIPLLVIGTKLDQIHETKRHEVltrTAFLAEDFNP-E-- 174

      kVtl.e.gdRpWeiaggcsAvkGeGLyEGldWLSnnikkr<-*
      ++ l+ ++ R + ++Avk l + + +++++
47324  175 EINLdCtnPRYLAAGSSNAVK-----LSRFFDKVIEK 206

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FIG. 3

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*->KlVliGdsGVGKSsLliRftdnkFveeYipTIGvDFytktevd...  SEQ ID NO:5
      K++++GDsgVGKSsL++ +n+ T+G+ ++ ++ +++
47324  8  KVLVLGDsgVGKSSLVHLLCQNQvLGNPSWTVGCSVDVRVHDYKegt 54

      ..GktvkLqIWDTAGQERFralrpa.....YYRgAqGfLLVYDITs
      ++ kt+ ++WD G ++ +a++ ++++ +Y +G++ V D T+
47324  55 peEKTYIELWDVGg-----SVGSAssvkstravFYNSVNGIIFVHDLTN 99

      rdSFenvkkWleeilr..had.....kdenvpivLVGNKc
      ++S +n+++W e l+++ +++ +++++ d+ +p + +G+K
47324  100 KKSSQNLRWSLEALNrdLVptgvlvtngdydqeqlfADNQIPLLVIGTKL 149

      DLeddedlelte.gqkRvVsteeGealAkelG.....lpFmETSA
      D + e++ +V t ++ lA++++ + + + + + + +
47324  150 DQIH-----EtKR-HEVLTRTAF-LAEDFNPeelndctnPRYLAAGS 190

      KtntNVeeaeFeelareilkkvsevnvldqpakkkkCcil<-*
      +++ F+ +++++ + ++++++ + +k+ +
47324  191 SNAVKLSRFFDKVIEKRYFLREGNQIPGFPD-RKRFGAGTLK 231

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FIG. 4

Query: 35 PSWTV-GCSVDVRVHDYKEGTPEEKT--YYIELWDXXXXXXXXXXXXXTRAVFYNSVNGI 91
P+WT S D + Y TP Y++E +D R FY +++GI
Sbjct: 69 PTWTPSSSEDSENYPYMRSTPTTTNILYFVEFYDLNSDWRMCRQQ---RESFYKNIDGI 125 SEQ ID
NO:6
Query: 92 IFVHDLTNKKSSQNLRRWSLEALNRDLVPTGVLVTNGDYDQEQFADNQIPLLIVIGTKLDQ 151
+ V+++ S +L W + L + + + + P+LV+GT LD+
Sbjct: 126 VLVYNMLELSSQDSLHDWLYDPLRQICKHRHLRI-----RSILKNHNAPILVVGTNLDK 179
Query: 152 IHETKRHEVLTRTAFLAEDFNPEEINLDCTNPRYLAAGSSNAVKLSRFFDKVIE-KRYF 209
+ L R +A N EE+ ++C +P+ S N KL F ++VIE K F
Sbjct: 180 L----MRRPLRRRGSIAHQNLNVEEMLVNCLDQSFVDKSRNQGLYGLNVRVIEFKEQF 234

FIG. 5a

Query: 7 VKVLVLGDSGVGKSSLVHLLCQNQVLGNP-SWTVG---CSVDVRVHDYKE 52
V++L+LGD GVGK+SL +L+ ++ P S TVG V VR+H+Y +
Sbjct: 12 VRILMLGDRGVGKTSLTNLMATTEITPTPDSRTVGEESWHVQVRLHEYSK 61 SEQ ID NO:7

FIG. 5b

Query: 121 TGVLVITNGD--YDQEQFAD-NQIPLLIVIGTKLDQIHETKRHEVL--TRTAFLAEDFNPEE 175
T L T+G +D E+F Q P+LV+GTKLD + E KRH + + +A+ EE
Sbjct: 19 TDNLGTDGHILFDMEEFGLATQTPILVMGTKLDLLDE-KRHPKMGVKKPGGIADKCGAEE 77 SEQ ID
NO:8
Query: 176 INLDCTNPRYLAAGSSNAVKLSRFFDKVIEKRYFLR-----EGNQIPGFDPDRKRFGAG 228
I L+C N R LAAG+++AVKLSRFFD+VIE R LR + PDR+RFG
Sbjct: 78 IWLNCNRSRSLAAGTTDAVKLSRFFDRVIENTKALRAALAFGVSSNAVSPPDRRRFGPT 137
Query: 229 TLK 231
+ K
Sbjct: 138 SAK 140

FIG. 6

Query: 6 RVKVLVLGDSGVGKSSLVHLLCQNQVLGNPSWTVGCSVDVRVHDYKEGTPEEKTYIE 63
 +V+VLV+GDSGVGK+SLVHL+ + + P T+GC+V V+ Y G+P + I+
 Sbjct: 80 QVRVLVVGDSGVGKTSLVHLINKGSSIVRPPQTIGCTVGVKHITY--GSPASSSSSIQ 135 SEQ ID NO:9

FIG. 7

Query: 8 KVLVLGDSGVGKSSLVHLL--CQNQ-----VLGNPSWTVGCSVDVRVHDYKEGT 54
 K++++GDSGVGK+SL++ L +N V+ + T+G +V+ T
 Sbjct: 7 KIVIIGDSGVGKTSLLNKLRFTEFSFTEEYDPTTRTVVDSYKSTIGVDFNVKTIEVVD 66 SEQ ID
 NO:10

Query: 55 PEEKTYIYELWDXXXXXXXXXXXXXTRAVFYNSVNGIIFVHDLTNKKSS-QNLRWSLEA 113
 + K +++WD A +Y I V+D+ + +SS +N +W E
 Sbjct: 67 -DGKNIKLQIWDTAGQERYRSMLEA-YRGAEADIIVYDVDSSESSFENQTKWLKEI 124

Query: 114 LNRDLVPTGVLVTNGDYDQEQFADNQIPLLIGTKLD-QI---HETKRHEVLTRTAFLAE 169
 L +N E+ ++N +P++++G K D ++ E + + T A+
 Sbjct: 125 LRH-----ASN-----EEASEN-VPIILVGKADLEVPNPPEVEEEKEEASTEEBAQ 170

Query: 170 DFNPEEINLDCTNPRYLAAGSSNAVKLSRFFDKVIEKRYFLREGNQIPGFPDRKRF 225
 F EE L P + + + F +++ R L++ +I D++++
 Sbjct: 171 SF-AEEKGLGVV-PFIETSAKTTGTNVEEVFQELV--REILKKKKEIQEKADQEKY 222

FIG. 8